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10/806,452	03/23/2004	Toshiki Taguchi	Q80594	1789

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EXAMINER

KLEMANSKI, HELENE G

ART UNIT PAPER NUMBER

1755

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/806,452

Applicant(s)

TAGUCHI ET AL.

Examiner

Helene Klemanski

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/5/04&8/12/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: on page 40, line 3, the term "Surfinols" should be replaced with the term "SURFYNOLS".

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: no literal antecedent basis is seen for the phrase "wherein the dye is a phthalocyanine dye containing -CO<sub>2</sub>-" in claim 11. See page 71 of the specification.

The examiner suggests the incorporation of this phrase into the specification or the claim amended accordingly.

### ***Claim Objections***

3. Claims 1, 6 and 14 are objected to because of the following informalities: in claim 1, line 1, the term "a" (first occurrence) should be deleted; in claim 6, line 2, the term "grouop" should be replaced with the term "group" and in claim 14, line 1, the term "cliam" should be replaced with the term "claim". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 1755

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an ink containing water, a water-soluble organic solvent, a dye, a betaine compound and a nonionic surfactant, does not reasonably provide enablement for an ink containing water, a water-soluble organic solvent, a dye and a betaine compound. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The claims recite an ink containing water, a water-soluble organic solvent, a dye and a betaine compound. However, the specification only teaches the use of for an ink containing water, a water-soluble organic solvent, a dye, a betaine compound and a nonionic surfactant. Such a limited disclosure does not support the breadth of the instant claims. See page 3 of the specification and the examples. The examiner suggests the incorporation of claim 2 into claim 1 to overcome this rejection.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 6, 12, 13, 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, the phrase "wherein the cationic site is selected from the group consisting of an amine form nitrogen atom" is considered vague and indefinite since it is

Art Unit: 1755

unclear where the amine atom comes from i.e. is the amine atom from a nitrogen atom in a group or is it formed from a nitrogen atom from some other location? See also page 7, line 4 of the specification. The examiner assumed applicants intended the amine atom to come form a nitrogen atom in a specific group and examiner as such. Please clarify.

Claims 12 and 15 are considered vague and indefinite since it is unclear as to exactly what the ink set contains. Is it the ink of claims 2 and 14 respectively or at least one of those inks? The examiner assumed applicants intended the ink set to contain the inks of claim 2 and 14 respectively as one of the inks in the ink set and examined as such. Please clarify.

Claims 13 and 16 are considered confusing since they are dependent upon two different claims. In claim 13, the examiner suggests replacing the phrase "by using at least one of the ink according to claim 2 and the ink set according to claim 12" with the phrase "comprising the ink according to claim 1" (see above 112, first paragraph rejection) and adding a new claim with the language "An ink jet recording method wherein an image is recorded with an ink jet printer comprising the ink set according to claim 12." (likewise with claim 16) to overcome this rejection.

### ***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

Art Unit: 1755

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-10 and 12-16 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 and 9-13 of copending Application No. 10/611,990 (US 2004/0055508). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are generic to said patent claims and would be obvious thereby.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 1-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 7-16 of copending Application No. 10/807,442 (US 2004/0200385). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are generic to said patent claims and would be obvious thereby.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Art Unit: 1755

11. Claims 1-10, 12 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2 and 5-11 of copending Application No. 10/805,251 (US 2005/0001890). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are generic to said patent claims and would be obvious thereby.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 1-10, 12 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 6 and 8-10 of copending Application No. 10/600,831 (US 2004/0011248). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are generic to said patent claims and would be obvious thereby.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claims 1-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11-23 of copending Application No. 10/660,653 (US 2004/0080595). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are generic to said patent claims and would be obvious thereby.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

14. Claims 1-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 8-16 of copending Application No. 10/806,424 (US 2004/0194660). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are generic to said patent claims and would be obvious thereby.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102***

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

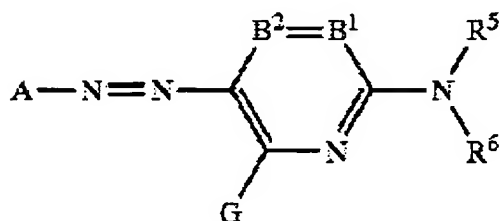
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 1-10 and 12-14 are rejected under 35 U.S.C. 102(a) as being anticipated by EP 1378550.

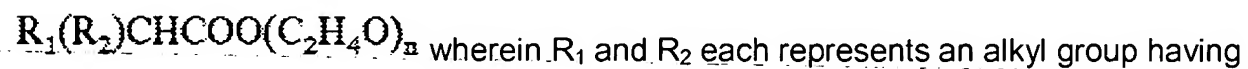
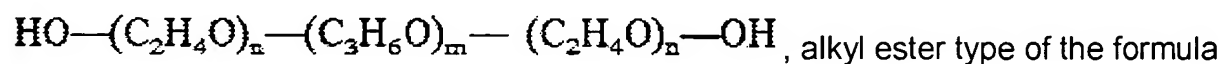


Art Unit: 1755

EP 1378550 teach an ink for ink jet recording comprising water, a water-soluble organic solvent, a dye of the formula



wherein A represents a five-membered heterocyclic ring; B<sup>1</sup> and B<sup>2</sup> each represents =N-, =CR<sup>1</sup>- or =CR<sup>2</sup>- and when one of B<sup>1</sup> and B<sup>2</sup> represents =N-, the other represents =CR<sup>1</sup>- or =CR<sup>2</sup>-; R<sup>5</sup> and R<sup>6</sup> each independently represents H or a substituent and G, R<sup>1</sup> and R<sup>2</sup> each independently represents H or a substituent and 0.001-50 wt% of a betaine surfactant having both a cationic site such as a nitrogen atom of an amine and an anionic site. The ink may further contain 0.001-5 wt% of a nonionic surfactant (i.e. antifoaming agent for preventing bubbles) such as an alkyl allyl ether ethylene oxide addition product, a polyoxyalkylene of the formula



1-10 carbon atoms and n=1-8 and acetylenediol and its addition product with 0-8 moles of ethylene oxide. The inks may further be filtered to remove impurities. The filter preferably has an effective diameter of 1 μm or less. The inks are printed onto a substrate such as a recording paper by ink jet printing process. The recording paper can comprise chemical pulp, mechanical pulp or waste paper pulp. The substrate can comprise an image receiving layer and a back coat layer. The image receiving layer

Art Unit: 1755

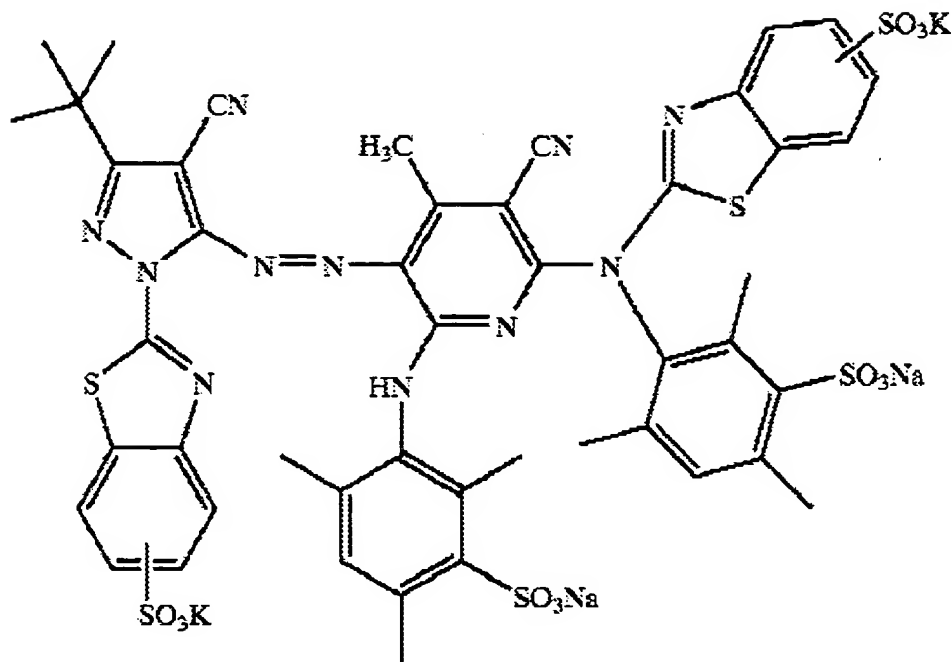
contains a porous material, an aqueous binder and a white pigment such as calcium carbonate, kaolin, talc, clay, diatomaceous earth, synthetic amorphous silica, aluminum silicate, magnesium silicate, calcium silicate, aluminum hydroxide, alumina, lithopone, zeolite, barium sulfate, calcium sulfate, titanium dioxide, zinc sulfide and zinc carbonate. The back coat layer contains an aqueous binder and a white pigment. See pages 2-5, azo dye compounds on pages 12-24, pages 27-30, page 31, lines 8-22, page 32, lines 18-26, page 33, lines 47-50, page 34, lines 6-21, pages 37-38, page 40, lines 4-10, example 1, Table 14 and claims 1-7 and 9, 10, 12 and 13. The ink for ink jet recording as taught by EP 1378550 appears to anticipate the present claims.

The only limitation in the claim 7 not found by the examiner is the oxidation potential of the dye. However, this limitation is considered inherent because there does not appear to be any reason why the cited reference would not contain a dye with applicants claimed oxidation potential since the azo dye of EP 1378550 is the same structural formula as claimed by applicants.

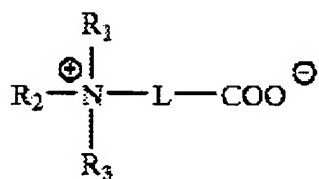
Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

17. Claims 1-10 and 12-16 are rejected under 35 U.S.C. 102(a) as being anticipated by EP 1375608.

EP 1375608 teach an ink set comprising at least four ink jet ink compositions wherein each ink comprises an aqueous medium, a dye of the formula



and 0.01-20 wt% of a betaine surfactant of the formula



wherein  $\text{R}_1$ ,  $\text{R}_2$  and  $\text{R}_3$  each represents an alkyl group, an aryl group or a heterocyclic group wherein at least two of  $\text{R}_1$ ,  $\text{R}_2$  and  $\text{R}_3$  may be linked with each other to form a ring;  $\text{L}$  represents a divalent linking group and at least one of  $\text{R}_1$ ,  $\text{R}_2$ ,  $\text{R}_3$  and  $\text{L}$  is a group having from 8 to 40 carbon atoms. Each ink jet ink compositions may further contain 0.001-15 wt% of a nonionic surfactant (i.e. defoaming agent) such as polyoxyethylene nonylphenyl ether, polyoxyethylene naphthyl ether, polyoxyethylene octylphenyl ether and SURFYNOLS (i.e. acetylene-based polyoxyethylene oxide surfactant). The inks are printed onto a substrate such as a recording paper by ink jet printing process. The recording paper can comprise chemical pulp, mechanical pulp or waste paper pulp.

Art Unit: 1755

The substrate can comprise an image receiving layer and a back coat layer. The image receiving layer contains a porous material, an aqueous binder and a white pigment such as calcium carbonate, kaolin, talc, clay, diatomaceous earth, synthetic amorphous silica, aluminum silicate, magnesium silicate, calcium silicate, aluminum hydroxide, alumina, lithopone, zeolite, barium sulfate, calcium sulfate, titanium dioxide, zinc sulfide and zinc carbonate. The back coat layer contains an aqueous binder and a white pigment.

Sound wave oscillation may also be performed on the inks for preventing the inks from generating bubbles by the pressure applied to a recording head. The sound wave is performed by applying sound wave energy which is the same with or higher than the energy applied at a recording head during the manufacture of the inks. The inks may further be filtered to remove impurities. The filter preferably has an effective diameter of 1  $\mu\text{m}$  or less. EP 1375608 further teaches an ink jet recording method using the above ink set comprising the above inks. See pages 2-4, compounds X-1 to X-18, page 9, lines 31-55, page 15, lines 10-34, page 16, lines 25-35, page 17, lines 22-50, examples 1 and 2, Tables 1 and 3 and claims 1, 2, 6 and 8-10. The ink set comprising at least four ink jet ink compositions as taught by EP 1375608 appears to anticipate the present claims.

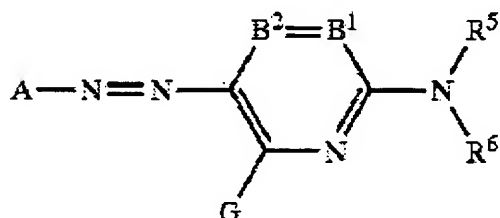
The only limitation in the claim 7 not found by the examiner is the oxidation potential of the dye. However, this limitation is considered inherent because there does not appear to be any reason why the cited reference would not contain a dye with applicants claimed oxidation potential since the azo dye of EP 1375608 is the same structural formula as claimed by applicants.

Art Unit: 1755

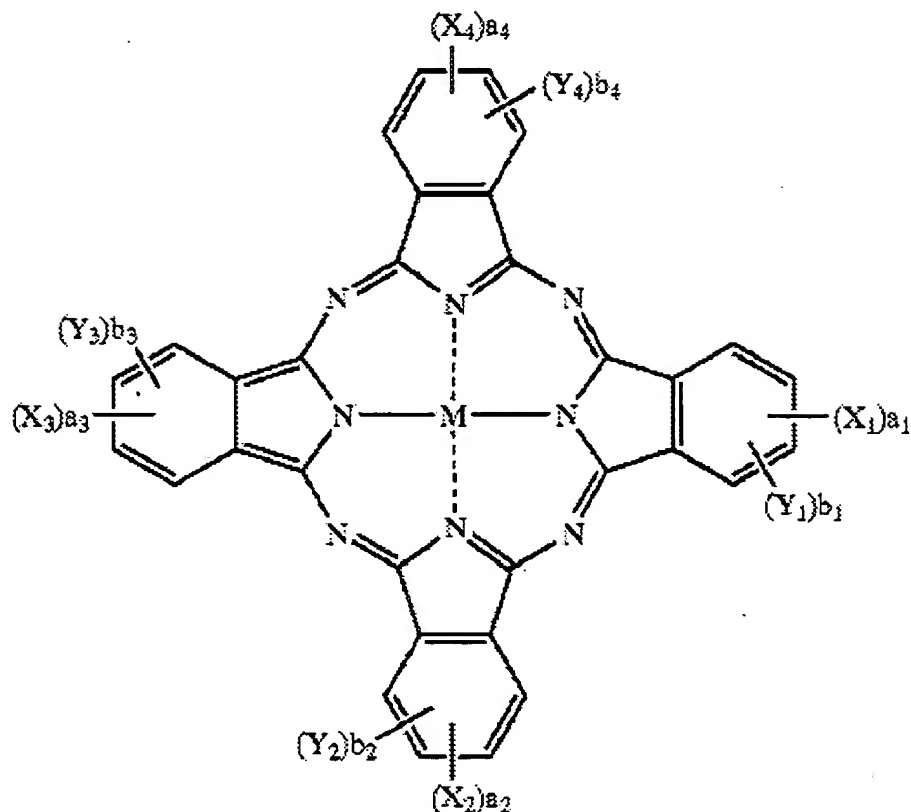
Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

18. Claims 1-13 are rejected under 35 U.S.C. 102(a) as being anticipated by EP 1473336.

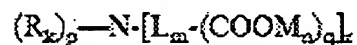
EP 1473336 teach an ink for ink jet recording comprising water, a water-soluble organic solvent, a dye of the formula



wherein A represents a five-membered heterocyclic ring; B<sup>1</sup> and B<sup>2</sup> each represents =N-, =CR<sup>1</sup>- or =CR<sup>2</sup>- and when one of B<sup>1</sup> and B<sup>2</sup> represents =N-, the other represents =CR<sup>1</sup>- or =CR<sup>2</sup>-; R<sup>5</sup> and R<sup>6</sup> each independently represents H or a substituent and G, R<sup>1</sup> and R<sup>2</sup> each independently represents H or a substituent or the formula



wherein  $X_1, X_2, X_3$  and  $X_4$  each represents  $-\text{SO}-\text{Z}, -\text{SO}_2\text{Z}, -\text{SO}_2\text{NR}_1\text{R}_2$ , a sulfo group,  $-\text{CONR}_1\text{R}_2$  or  $-\text{CO}_2\text{R}_1$ ;  $\text{Z}$  represents an alkyl, a cycloalkyl, an alkenyl, an aralkyl, an aryl or a heterocyclic group;  $\text{R}_1$  and  $\text{R}_2$  each represents  $\text{H}$ , an alkyl, a cycloalkyl, an alkenyl, an aralkyl, an aryl or a heterocyclic group;  $Y_1, Y_2, Y_3$  and  $Y_4$  each represents a monovalent substituent;  $a_1-a_4$  each represents an integer of 0-4 wherein  $a_1-a_4$  are not all zero at the same time and  $b_1-b_4$  each represents an integer of 0-4 and 0.001-50 wt% of a betaine compound of the formula



wherein  $\text{R}$  represents an alkyl, an aryl or a heterocyclic group;  $\text{L}$  is a divalent linking group;  $\text{M}$  is  $\text{H}$ , an alkali metal cation, ammonium ion or an organic amine cation;  $q$  and  $r$

Art Unit: 1755

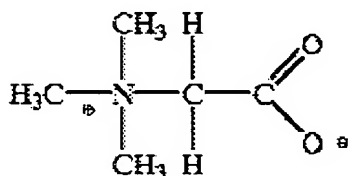
each represents an integer of 1 or more; k and m each represents 0 or an integer of 1 or more; n represents an integer of 1 or more and p represents 0 or an integer of 1 or more. EP 1473336 further teaches an ink set for ink jet recording comprising the above ink composition and optionally the dye density in each ink is different to form a dark ink and a light ink. Each ink jet ink compositions may further contain 0.001-15 mass% of a nonionic surfactant (i.e. defoaming agent) such as polyoxyethylene nonylphenyl ether, polyoxyethylene naphthyl ether, polyoxyethylene octylphenyl ether and SURFYNOLS (i.e. acetylene-based polyoxyethylene oxide surfactant). The inks are printed onto a substrate such as a recording paper by ink jet printing process. The recording paper can comprise chemical pulp, mechanical pulp or waste paper pulp. The substrate can comprise an image receiving layer and a back coat layer. The image receiving layer contains a porous material, an aqueous binder and a white pigment such as calcium carbonate, kaolin, talc, clay, diatomaceous earth, synthetic amorphous silica, aluminum silicate, magnesium silicate, calcium silicate, aluminum hydroxide, alumina, lithopone, zeolite, barium sulfate, calcium sulfate, titanium dioxide, zinc sulfide and zinc carbonate. The back coat layer contains an aqueous binder and a white pigment. The inks may further be filtered to remove impurities. See pages 2-7, azo dye compounds on pages 13-25, page 28, lines 25-30, phthalocyanine dye compounds on pages 38-50, page 58, line 57 – page 59, line 3, compounds W-1 to W18 and X-1 to X-16, page 66, lines 32-37, page 70, lines 27-35, examples 1-4 and claims 1, 2, 8, 9, 13, 15, 20, 22, 24 and 25. The ink for ink jet recording as taught by EP 1473336 appears to anticipate the present claims.

Art Unit: 1755

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

19. Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Gundlach et al.

Gundlach et al. teach a set of inks comprising at least a first ink having a first color and a second ink having a second color darker than the first color wherein the first ink comprises water, a water-soluble organic solvent, a colorant such as a dye and 1-60% by weight of a monomeric zwitterionic compound such as betaine compound of the formula



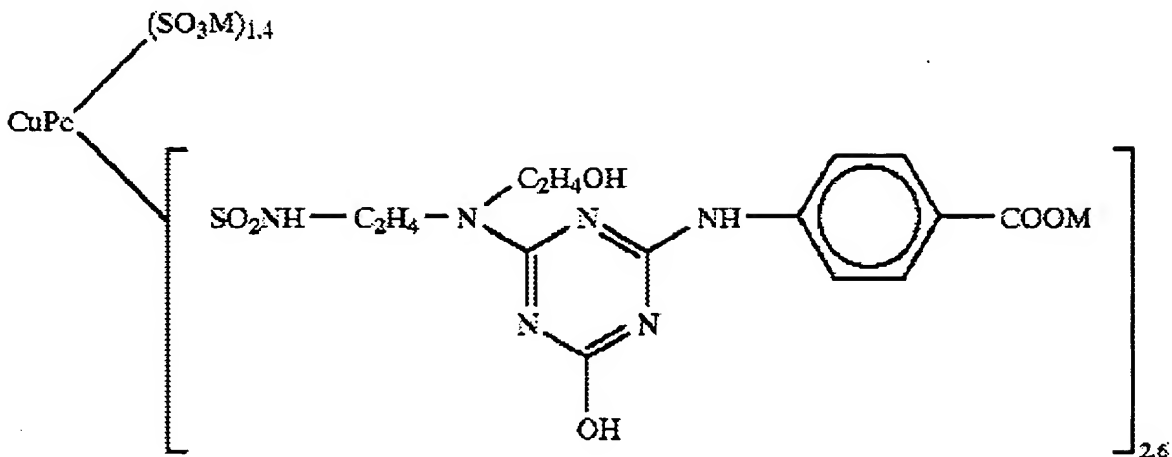
and the second ink comprises water, a water-soluble organic solvent and a pigment.

The ink may further be filtered to remove impurities. See col. 5, lines 50-60, col. 6, lines 10-39 and 65-67, col. 11, lines 13-43 and example 1. The set of inks as taught by Gundlach et al. appears to anticipate the present claims.

20. Claims 1-9, 11, 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiraoka et al.

Hiraoka et al. teach an ink for ink jet recording comprising water, a water-soluble organic solvent, a dye of the formula





betaine and a nonionic surfactant. The ink may further be filtered to remove impurities. See examples 15, 17, 24, 26, 30, 37, 42, 46, 49, 54 and claims 1 and 21-24. The ink for ink jet recording as taught by Hiraoka et al. appears to anticipate the present claims.

The only limitation in the claim 7 not found by the examiner is the oxidation potential of the dye. However, this limitation is considered inherent because there does not appear to be any reason why the cited reference would not contain a dye with applicants claimed oxidation potential since the phthalocyanine dye of Hiraoka et al. is the same structural formula as claimed by applicants.

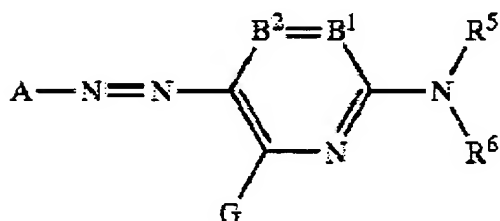
21. Claims 1-10 and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyamoto et al (US 2004/0055508).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

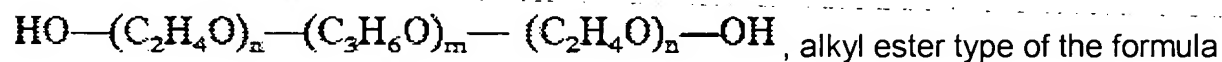
Art Unit: 1755

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Miyamoto et al (US 2004/0055508) teach an ink for ink jet recording comprising water, a water-soluble organic solvent, a dye of the formula



wherein A represents a five-membered heterocyclic ring; B<sup>1</sup> and B<sup>2</sup> each represents =N-, =CR<sup>1</sup>- or =CR<sup>2</sup>- and when one of B<sup>1</sup> and B<sup>2</sup> represents =N-, the other represents =CR<sup>1</sup>- or =CR<sup>2</sup>-; R<sup>5</sup> and R<sup>6</sup> each independently represents H or a substituent and G, R<sup>1</sup> and R<sup>2</sup> each independently represents H or a substituent and 0.001-50 wt% of a betaine surfactant having both a cationic site such as a nitrogen atom of an amine and an anionic site. The ink may further contain 0.001-5 wt% of a nonionic surfactant (i.e. antifoaming agent for preventing bubbles) such as an alkyl allyl ether ethylene oxide addition product, a polyoxyalkylene of the formula



$\text{R}_1(\text{R}_2)\text{CHCOO}(\text{C}_2\text{H}_4\text{O})_n$  wherein R<sub>1</sub> and R<sub>2</sub> each represents an alkyl group having 1-10 carbon atoms and n=1-8 and acetylenediol and its addition product with 0-8 moles of ethylene oxide. The inks may further be filtered to remove impurities. The filter preferably has an effective diameter of 1 μm or less. The inks are printed onto a substrate such as a recording paper by ink jet printing process. The recording paper

Art Unit: 1755

can comprise chemical pulp, mechanical pulp or waste paper pulp. The substrate can comprise an image receiving layer and a back coat layer. The image receiving layer contains a porous material, an aqueous binder and a white pigment such as calcium carbonate, kaolin, talc, clay, diatomaceous earth, synthetic amorphous silica, aluminum silicate, magnesium silicate, calcium silicate, aluminum hydroxide, alumina, lithopone, zeolite, barium sulfate, calcium sulfate, titanium dioxide, zinc sulfide and zinc carbonate. The back coat layer contains an aqueous binder and a white pigment. See paras. 0009-0013, para. 0019, paras. 0023-0029, paras. 0041-0046, para. 0048, azo dye compounds on pages 9-27, para. 0116, paras. 0140-0149, para. 0163, para. 0172, paras. 0183-0184, paras. 0190-0197, paras. 0232-0237, paras. 0250-0252, example 1, Table 14 and claims 1-7 and 9, 10, 12 and 13. The ink for ink jet recording as taught by Miyamoto et al (US 2004/0055508) appears to anticipate the present claims.

The only limitation in the claim 7 not found by the examiner is the oxidation potential of the dye. However, this limitation is considered inherent because there does not appear to be any reason why the cited reference would not contain a dye with applicants claimed oxidation potential since the azo dye of Miyamoto et al. (US 2004/0055508) is the same structural formula as claimed by applicants.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

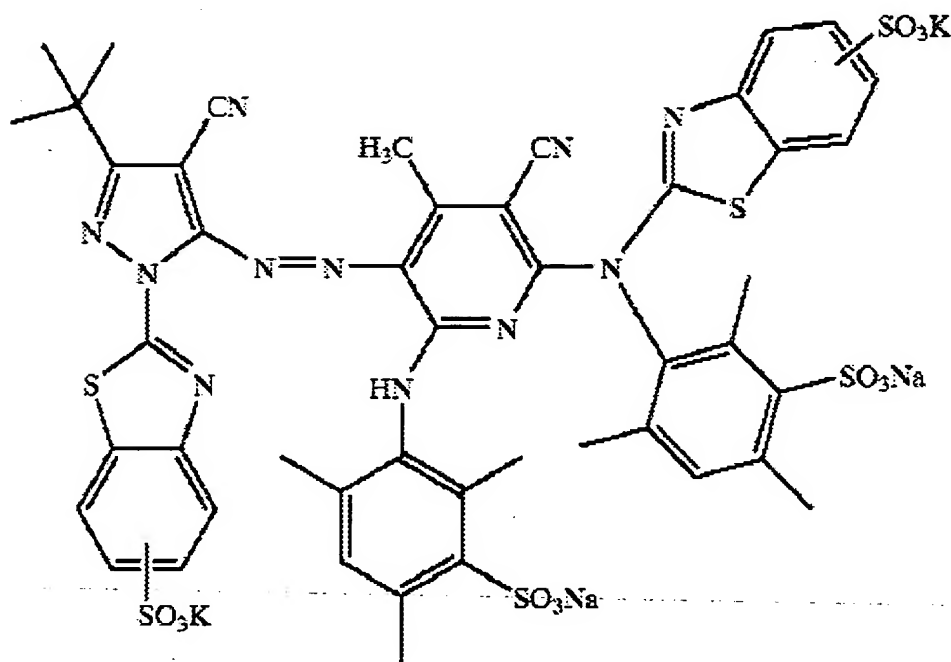
22. Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Taguchi et al (US 2004/0011248).

Art Unit: 1755

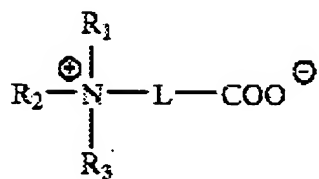
The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Taguchi et al (US 2004/0011248) teach an ink set comprising at least four ink jet ink compositions wherein each ink comprises an aqueous medium, a dye of the formula



and 0.01-20 wt% of a betaine surfactant of the formula



Art Unit: 1755

wherein  $R_1$ ,  $R_2$  and  $R_3$  each represents an alkyl group, an aryl group or a heterocyclic group wherein at least two of  $R_1$ ,  $R_2$  and  $R_3$  may be linked with each other to form a ring; L represents a divalent linking group and at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and L is a group having from 8 to 40 carbon atoms. Each ink jet ink compositions may further contain 0.001-15 wt% of a nonionic surfactant (i.e. defoaming agent) such as polyoxyethylene nonylphenyl ether, polyoxyethylene naphthyl ether, polyoxyethylene octylphenyl ether and SURFYNOLS (i.e. acetylene-based polyoxyethylene oxide surfactant). The inks are printed onto a substrate such as a recording paper by ink jet printing process. The recording paper can comprise chemical pulp, mechanical pulp or waste paper pulp.

The substrate can comprise an image receiving layer and a back coat layer. The image receiving layer contains a porous material, an aqueous binder and a white pigment such as calcium carbonate, kaolin, talc, clay, diatomaceous earth, synthetic amorphous silica, aluminum silicate, magnesium silicate, calcium silicate, aluminum hydroxide, alumina, lithopone, zeolite, barium sulfate, calcium sulfate, titanium dioxide, zinc sulfide and zinc carbonate. The back coat layer contains an aqueous binder and a white pigment.

Sound wave oscillation may also be performed on the inks for preventing the inks from generating bubbles by the pressure applied to a recording head. The sound wave is performed by applying sound wave energy which is the same with or higher than the energy applied at a recording head during the manufacture of the inks. The inks may further be filtered to remove impurities. The filter preferably has an effective diameter of 1  $\mu\text{m}$  or less. Taguchi et al. (US 2004/0011248) further teach an ink jet recording method using the above ink set comprising the above inks. See paras. 0007-0019,

Art Unit: 1755

compounds X-1 to X-18, paras. 0031-0032, paras. 0072, paras. 0075-0078, para. 0088, paras. 0136-0142, paras. 0153-0155, paras. 0165-0167, para. 0173, para. 0178, examples 1 and 2, Tables 1 and 3 and claims 1, 2, 6 and 8-10. The ink set comprising at least four ink jet ink compositions as taught by Taguchi et al (US 2004/0011248) appears to anticipate the present claims.

The only limitation in the claim 7 not found by the examiner is the oxidation potential of the dye. However, this limitation is considered inherent because there does not appear to be any reason why the cited reference would not contain a dye with applicants claimed oxidation potential since the azo dye of Taguchi et al. (US 2004/0011248) is the same structural formula as claimed by applicants.

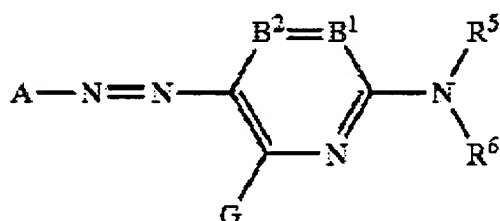
Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

23. Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Taguchi et al. (US 2004/0080595).

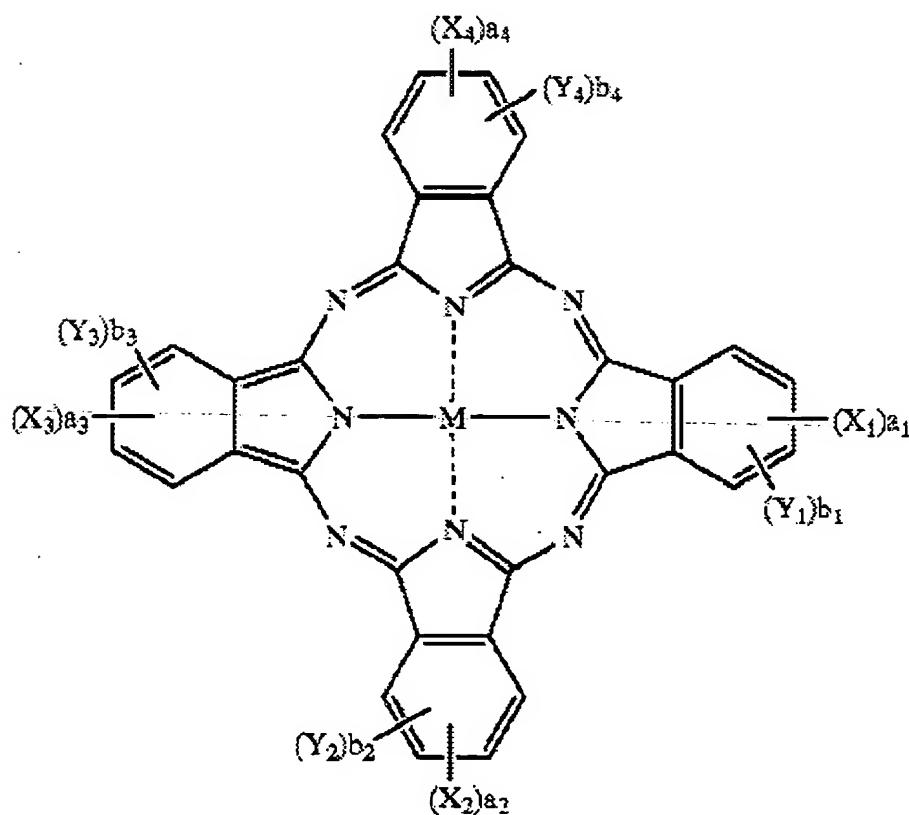
The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Art Unit: 1755

Taguchi et al. (US 2004/0080595) teach an ink for ink jet recording comprising water, a water-soluble organic solvent, a dye of the formula

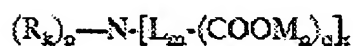


wherein A represents a five-membered heterocyclic ring; B<sup>1</sup> and B<sup>2</sup> each represents =N-, =CR<sup>1</sup>- or =CR<sup>2</sup>- and when one of B<sup>1</sup> and B<sup>2</sup> represents =N-, the other represents =CR<sup>1</sup>- or =CR<sup>2</sup>-; R<sup>5</sup> and R<sup>6</sup> each independently represents H or a substituent and G, R<sup>1</sup> and R<sup>2</sup> each independently represents H or a substituent or the formula



Art Unit: 1755

wherein  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  each represents  $-\text{SO}-\text{Z}$ ,  $-\text{SO}_2\text{Z}$ ,  $-\text{SO}_2\text{NR}_1\text{R}_2$ , a sulfo group,  $-\text{CON R}_1\text{R}_2$  or  $-\text{CO}_2\text{R}_1$ ;  $\text{Z}$  represents an alkyl, a cycloalkyl, an alkenyl, an aralkyl, an aryl or a heterocyclic group;  $\text{R}_1$  and  $\text{R}_2$  each represents H, an alkyl, a cycloalkyl, an alkenyl, an aralkyl, an aryl or a heterocyclic group;  $\text{Y}_1$ ,  $\text{Y}_2$ ,  $\text{Y}_3$  and  $\text{Y}_4$  each represents a monovalent substituent;  $a_1$ -  $a_4$  each represents an integer of 0-4 wherein  $a_1$ -  $a_4$  are not all zero at the same time and  $b_1$ -  $b_4$  each represents an integer of 0-4 and 0.001-50 wt% of a betaine compound of the formula



wherein  $\text{R}$  represents an alkyl, an aryl or a heterocyclic group;  $\text{L}$  is a divalent linking group;  $\text{M}$  is H, an alkali metal cation, ammonium ion or an organic amine cation;  $q$  and  $r$  each represents an integer of 1 or more;  $k$  and  $m$  each represents 0 or an integer of 1 or more;  $n$  represents an integer of 1 or more and  $p$  represents 0 or an integer of 1 or more. Taguchi et al. (US 2004/0080595) further teach an ink set for ink jet recording comprising the above ink composition and optionally the dye density in each ink is different to form a dark ink and a light ink. Each ink jet ink compositions may further contain 0.001-15 wt% of a nonionic surfactant (i.e. defoaming agent) such as polyoxyethylene nonylphenyl ether, polyoxyethylene naphthyl ether, polyoxyethylene octylphenyl ether and SURFYNOLS (i.e. acetylene-based polyoxyethylene oxide surfactant). The inks are printed onto a substrate such as a recording paper by ink jet printing process. The recording paper can comprise chemical pulp, mechanical pulp or waste paper pulp. The substrate can comprise an image receiving layer and a back coat layer. The image receiving layer contains a porous material, an aqueous binder



Art Unit: 1755

and a white pigment such as calcium carbonate, kaolin, talc, clay, diatomaceous earth, synthetic amorphous silica, aluminum silicate, magnesium silicate, calcium silicate, aluminum hydroxide, alumina, lithopone, zeolite, barium sulfate, calcium sulfate, titanium dioxide, zinc sulfide and zinc carbonate. The back coat layer contains an aqueous binder and a white pigment. The inks may further be filtered to remove impurities. See para. 0016, paras. 0032-0034, paras. 0042-0052, compounds X-1 to X-20, paras. 0222-0227, paras. 0271-0277, Tables 1-4, paras. 0355-0357, paras. 0383-0393, compounds (I-1) to (I-12), Tables 14-20, paras. 0431-0438, para. 0471, paras. 0475-0479, paras. 0489-0491, examples 3 and 4. Tables 27 and 29 and claims 1, 5, 6 and 11-23. The ink for ink jet recording as taught by Taguchi et al (US 2004/0080595) appears to anticipate the present claims.

The only limitation in the claim 7 not found by the examiner is the oxidation potential of the dye. However, this limitation is considered inherent because there does not appear to be any reason why the cited reference would not contain a dye with applicants claimed oxidation potential since the azo dye of Taguchi et al (US 2004/0080595) is the same structural formula as claimed by applicants.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

**Conclusion**

The remaining references listed on forms 892 and 1449 have been reviewed by the examiner and are considered to be cumulative to or less material than the prior art references relied upon in the above rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Klemanski whose telephone number is (571) 272-1370. The examiner can normally be reached on Monday-Friday 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on (571) 272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Helene Klemanski  
Primary Examiner  
Art Unit 1755



HK  
February 15, 2005